PrintED/SkillsUSA Digital File Preparation Competencies

The PrintED/SkillsUSA Digital File Preparation competencies encompass the knowledge and skill set a student should master to exhibit proficiency in digital file preparation. The PrintED/SkillsUSA Digital File Preparation Skill Connect Assessment test questions align with the PrintED/SkillsUSA Digital File Preparation competencies.

Note: To fully prepare for the Digital File Preparation SkillsUSA Championships contest, refer to the current year's *SkillsUSA Championships Technical Standards CD-ROM*, or purchase and download the relevant *Contest Singles,* which are both available in the Educational Resources Catalog at: http://www.skillsusa.org/store/.

A. Orientation to Digital File Preparation

1. Read and interpret production information on job docket/ticket.
2. Identify and list the basic principles of design (i.e., unity, contrast, page proportions, balance, etc.)
3. Identify and explain line images and appropriate resolutions.
4. Identify and explain continuous tone/ halftone images and appropriate resolutions.
5. Identify basic process color principles and methods of reproduction.
6. Define PostScript.
7. Describe the use of each of the following: word processing, illustration, image editing, and page layout software.
8. Demonstrate keyboard typing proficiency.
9. Prepare a series of hand-drawn sketches or computer-generated layouts incorporating appropriate marks (i.e., gutters, register marks, fold lines, etc.)
10. Describe the types and procedures for using removable storage media.
11. Describe the use of FTP (File Transfer Protocol) in transferring files from one computer to another.
12. Define preflighting and its purpose.
13. Preflight a native file using application preflight software and/or a manual check list.
14. Preflight a PDF file using application preflight software and/or a manual checklist.
15. Define computer-to-plate, computer-to-press, and variable data printing.

B. Digital File Preparation: Type

1. Measure type in points using the appropriate tools.
2. Explain x-height, mean-line, baseline, ascenders, descenders, leading, and their roles in measuring and designing with type.
3. Explain the use of caps, lowercase, uppercase, small caps, ligatures, and glyphs.
4. Define the use of glyphs in publications.
5. Distinguish between display (headline) type and body (text) type by their point sizes and type styles.
6. List the basic type style classifications and their uses.
7. Describe the appropriate use of type family members (e.g., bold, italic, Roman, etc.)
8. Explain letter spacing, tracking, and kerning of type characters.
9. Explain typographic ems and ens and their associated dashes.
10. Define the use of type arrangements, e.g., flush left–ragged right, flush right–ragged left, centered, and justified.
11. Explain the differences between TrueType, Postscript Type 1, and Open Type fonts.
12. Demonstrate or explain the proper use of loading, displaying and organizing fonts using a font management software application.

C. Digital File Preparation: Page Layout

1. Select professional software for page layout.
2. Demonstrate the use of a digital dictionary and spell checker.

3. Demonstrate proper line and page breaks including hyphenation, widows and orphans.
4. Demonstrate a functional knowledge of computer menus, shortcut keys, and palettes in page layout software.
5. Demonstrate text alignment (flush left, flush right, center), vertical justification (top, center, bottom justified), and object alignment and distribution.
6. Demonstrate use of basic proofreading marks.
7. Demonstrate the proper setup of a new document including facing pages, page size and orientation, columns, margins, bleeds, and slugs.
8. Apply appropriate paragraph formatting to text (indents, spaces before and after, drop caps, etc.).
9. Place or get text from a word processed document.
10. Design and produce a document using specified type faces, sizes, leading, margins, indents, tabs, and colors.
11. Identify appropriate professional software for inputting words, creating illustrations, editing images, and laying out pages.
12. Follow proofreading instructions to correct documents on screen.
13. Place or get images.
14. Demonstrate cropping images.
15. Create a two-sided, three-panel brochure using graphics and text.
16. Create a multi-page document using master pages, automatic folios, paragraph style sheets, levels of headings, sidebars, text inset, masthead, text, and graphics.
17. Create a document that includes tables.
18. Create a document using tints, reverses and manipulated type.
19. Produce a multi-colored flyer that includes at least two spot colors and output separations.
20. Demonstrate soft proofing using an appropriate profile and explain why it is used.
21. Make a hard copy proof with appropriate printer marks.
22. Upon completion of a job, demonstrate how to preflight, proof (hard and soft), package, and create an output-appropriate PDF.

D. Digital File Preparation: Image Capture

1. Identify the difference between continuous tone images, halftone images, and line art.
2. Identify the basic components and uses of flatbed scanner hardware.
3. Describe uses and limitations of basic scanner software.
4. Explain the various components and settings (aperture, shutter speed, image resolution, white balance, etc.) of a digital camera.
5. Capture digital images using a scanner and digital camera.
6. Demonstrate appropriate scanner/program operations for line artwork.
7. Demonstrate appropriate scanner/program operations for continuous tone color and grayscale images.
8. Transfer images from a camera and scanner to a host computer.
9. Describe what an ICC profile is and its use.
10. Demonstrate how to convert RGB images in CMYK using various ICC profiles.
11. Demonstrate saving scanned images into an appropriate file format.
12. Given an image, determine whether it is high or low resolution.
13. Explain the image resolution requirements for various uses (screen/web versus press).
14. Download a digital image from a stock photography web site or CD and resize according to specifications provided.
15. Using bitmap editing software, retouch, crop, make modifications, color corrections, and levels adjustments to prepare an image to print correctly on a printing press.

E. Digital File Preparation: Illustration

1. Demonstrate a functional knowledge of computer menus, shortcut keys, and palettes in illustration software.
2. Create a single color vector graphic.
3. Create a vector graphic using tints, fills, and color.

4. Create a vector graphic using manipulated type.
5. Trace a bitmap drawing and convert to a vector.
6. Edit an existing piece of vector art.

F. Digital File Preparation: PDF

1. Explain why the Portable Document Format (PDF) is an integral part of the printing industry.
2. Explain the difference between a PDF and native application files.
3. List the advantages and disadvantages of PDF.
4. Explain the various methods used to create PDFs.
5. Create a PDF from a native application file.
6. Describe the differences between the PDF standards (such as PDF/x-3, press quality PDF, etc.)
7. Describe why some PDFs are not appropriate for print production.
8. Demonstrate how to make minor corrections to a PDF file.

G. Digital File Output

1. Read and interpret production information on job docket/ticket.
2. Identify safety considerations in computer-to-plate and direct-to-digital press.
3. Read and interpret material safety data sheets (MSDS).
4. Define preflighting and file repair.
5. List common digital file problems in a native file and a PDF.
6. Repair a native file and PDF that exhibits basic file problems.
7. Define trapping as it relates to prepress.
8. Describe the various software options for creating digital traps.
9. Demonstrate the proper trap to apply to a digitally created page using page layout, illustration, and/or trapping software.
10. Define various imposition styles such as work & turn, work & tumble, sheetwise, multiple up, and perfecting.
11. Demonstrate how to send, manage and impose an electronic file using digital imposition software.
12. Create a folding dummy for a 16-page job with proper pagination, folds, and guides.
13. Explain why calibration is important for digital output devices.
14. Output a multicolor digital file to direct-to-plate system, digital inkjet printer, laser printer or digital press.
15. Identify digital direct-to-plate system materials and plate types.
16. List the considerations in selecting the correct plate making procedures and materials (paper, polyester, metal) for a given job.
17. Identify basic digital proofing systems and materials.
18. Output a file to a digital color proofing device.
19. Discuss and demonstrate soft proofing software.
20. Define computer-to-plate technology.
21. Describe the technology used in lasergenerated output devices.
22. List the considerations in imaging related to the characteristics of paper and other printing substrates (e.g., foil, plastic).
23. Describe the effect of dot gain or loss on the reproduction system.
24. Describe the difference between undercolor removal (UCR) and gray component replacement (GCR).
25. Explain the differences between a densitometer, plate reader, and spectrophotometer, and when you use each.
26. Describe process control procedures necessary for successful digital file output.
27. Identify and describe direct imaging technologies on press.
28. Describe the use of plate scanning and ink key presetting technologies.
29. Explain CIP4 and JDF and how it is used in the production of a job.
30. Observe computer-to-plate operations at a commercial printer.

H. Basic Math

1. Solve addition of whole number problems—two and three digits.
2. Solve addition of fraction problems.
3. Solve addition of decimal problems—two and three digits.
4. Solve subtraction of whole number problems—two and three digits.
5. Solve subtraction of fraction problems.
6. Solve subtraction of decimal problems—two and three digits.
7. Solve multiplication of whole numbers—two and three digits.
8. Solve multiplication of decimal problems—two and three digits.
9. Solve division of whole number problems-two and three digits.
10. Solve various problems that require dividing a given dimension in half.
11. Solve division of decimal problems-two and three digits.
12. Solve decimals to percent conversion problems.
13. Solve percent to decimal conversion problems.
14. Solve basic ratio and proportion problems.
15. Solve basic linear measurement problems.
16. Solve basic type calculation problems
17. Solve basic liquid measurement problems.
18. Solve basic paper cutting calculations
19. Solve word problems that require an understanding of estimating.

I. Job Application and Interpersonal Skill

1. Describe work ethics that should be exhibited by employees in the digital file preparation industry.
2. Demonstrate how to locate job listings through a variety of sources (e.g., Internet; job boards; help wanted ads; job fairs; agencies, etc.).
3. Read and interpret the content of want ads and job postings.
4. Write a personal resume that includes three references.
5. Write a cover letter to obtain a job in the digital file preparation industry.
6. Read and complete an employment application form.
7. Describe ways to prepare for a successful job interview.
8. Prepare for a job telephone interview by participating in a mock interview conducted by a teacher, parent, or another student.
9. Describe the reasons for job interview follow-up.
10. Write a letter or email to follow-up a job interview.
11. Evaluate an employment benefits package.
12. Compare job opportunities to include wages, benefits, and employment responsibilities.

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SkillsUSA *is of the understanding that students who take the PrintED/SkillsUSA Digital File Preparation Skill Connect Assessment have been enrolled in a digital file preparation training program with the following competencies embedded within the curriculum.*

Identified Academic Skills

Math Skills

- Use fractions to solve practical problems
- Simplify numerical expressions
- Solve practical problems involving percents
- Solve single variable algebraic expressions

Language Arts Skills

- Provide information in conversations and in group discussions
- Provide information in oral presentations

- Demonstrate use of nonverbal communication skills: eye contact, posture and gestures using interviewing techniques to gain information
- Demonstrate knowledge of appropriate reference materials

Connections to National Standards

State-level academic curriculum specialists identified the following connections to national academic standards.

Math Standards

- Geometry
- Measurement
- Problem solving
- Communication
- Connections
- Representation

Source: NCTM Principles and Standards for School Mathematics. To view high school standards, visit: standards.nctm.org/document/chapter7/index.htm. Select "Standards" from menu.

Science Standards

- Understands the structure and properties of matter
- Understands the sources and properties of energy
- Understands forces and motion
- Understands the nature of scientific inquiry

Source: McREL compendium of national science standards. To view and search the compendium, visit: www.mcrel.org/standards-benchmarks/.

Language Arts Standards

- Students read a wide range of print and nonprint texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.
- Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, and graphics).
- Students adjust their use of spoken, written and visual language (e.g., conventions, style, and vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- Students use a variety of technological and information resources (e.g., libraries, databases, computer networks and video) to gather and synthesize information and to create and communicate knowledge.
- Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Source: IRA/NCTE Standards for the English Language Arts. To view the standards, visit: www.readwritethink.org/standards/index.html.